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Fermi National Accelerator Laboratory

**Technical Division
Headquarters**

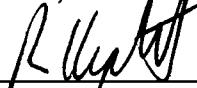
Self-Assessment Program

TD-2020

Version 3

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<tr><td>Authored, TD Quality Assurance Officer</td><td>Date</td></tr>
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<tr><td>Reviewed, TD Associate Division Head</td><td>Date</td></tr>
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Revision History

Version	Date	Section No.	Specifics
1	13-Nov-1995	All	Initial release
2	29-Oct-2001	All	Updated to reflect organizational and policy/procedure changes
3	25-Feb-2003	2.5	Added statement "See also policy TD-1140, Operational Readiness Clearance."
		4.1	Adjusted scope of review to match current methodology (programmatic, ES&H and quality).
		4.2	Added note regarding the contractual self-assessments for FY2002 through FY2004.
		4.6	As a result of audit TD-2002-11, more details of the DuPont-style audits were added to this section. Also added the paragraphs regarding management walk-through tours.

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Senior Safety Officer
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1.0 Introduction

The Technical Division mission is:

"The development, design, fabrication or procurement, and testing of accelerator and detector components."

Due to the level of complexity of the components that are fabricated in the Technical Division, it was decided to implement a formal, i.e. documented, program that describes the practices used by the division to assure the quality of our work. The purpose of the quality program is to aid the division in assuring the quality of our work, while encouraging the creativity of the people doing the work. By creating and maintaining our quality system, we are able to see and understand our organization as a *system*, not as separate groups working independently.

The Self-Assessment Program provides management with feedback on the *adequacy, implementation, and effectiveness* of the division's management systems. The assessments serve as a conduit for process verification, early detection of problems, improved processes, and new ideas. The value of an assessment is found in the improvement opportunities it identifies, as well as in the learning that takes place from doing the assessment, both for the auditor and the auditee.
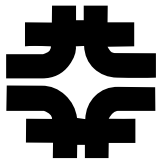
Technical Division assessments focus on systems and operations. This entails using fact-based observations as a basis for drawing conclusions about the health of the organization's systems, and the operations within those systems. The conclusions are reported in a way that can be used as lessons learned and to initiate long-term improvement. Since the focus is on improvement, auditors must be willing to think, to arrive at conclusions, and to report their findings and recommendations to management.

The Technical Division Self-Assessment Program is designed to meet the requirements of Laboratory policies and is based on, but not confined to, guidance contained in the Fermilab Self-Assessment Program Plan, as well as DOE G 414.1-1 Implementation Guide for use with Independent and Management Assessments.

2.0 Roles and Responsibilities

2.1 *Headquarters*

The Division Head has overall responsibility for the development and implementation of the TD Programmatic, ES&H and QA programs, and for the development of a Self-Assessment Program to evaluate these programs. The Division Head is supported in the development and assessment of these programs by line management, the ES&H Group, the QA Manager, and other resources as required.

1. By the first month of each quarter, a schedule of planned ES&H assessments for that quarter is created. The schedule identifies known internal and external ES&H assessments, as well as who is responsible for conducting the assessments.

2. On a quarterly basis, the Division Head submits a report to the Directorate, summarizing assessment activities that occurred within the division during the reporting period. Topics in the quarterly report may include, but are not limited to, information on future self-assessment plans, summaries of self-assessment activities, status of external findings, and concerns or lessons learned as a result of self-assessment activities. These reports are submitted by the 15th of April, July, October, and January. Refer to the Fermilab Self-Assessment Program Plan for more details.

The Division Head designates a member of the division management staff to develop and maintain the TD planned assessment schedule. The schedule is adjusted as necessary to ensure that assessment activities correspond with current division operations and needs.

A member of the TD Headquarters staff is assigned the responsibility for monitoring the status of external findings in ESHTRK to ensure that corrective actions are completed in a timely manner. Periodic status reports are presented to the department heads and the Division Head.
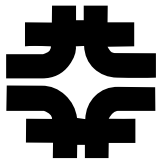
2.2 *ES&H Group*

The functional responsibilities of the TD ES&H group are defined in the Technical Division Quality Management Program TD-2010, Section 1 (under responsibilities for the Support Department, section 1.5). In its ES&H assessment function, the ES&H group monitors the work environment in TD facilities through operational assessments, quarterly walk-throughs, and other periodic assessments such as ergonomic and industrial hygiene assessments. These processes help to ensure that TD workspaces conform to established Fermilab ES&H policies and practices in accordance with applicable standards and regulations. The ES&H group also investigates and writes accident and illness reports, and provides advice and guidance on ES&H matters to division management as appropriate.

2.3 *QA Manager*

The QA Manager assists division management in the preparation of self-assessment programs and procedures and in evaluating the results of self-assessments performed on division operations.

2.4 *Departments*

Departments are encouraged to perform periodic self-assessments of their work processes to assess performance and identify areas where improvements can be made to increase quality and efficiency. In addition to the quarterly OSHA-type inspections, periodic assessments should be conducted to review the status and

implementation of work processes, calibration programs, maintenance programs, quality assurance programs, and other programs and plans which are critical to the successful and effective operation of the department.

Department heads submit an assessment summary report to the Division Head on or before the 10th of January, April, July and October. This report summarizes assessment activities that occurred in the department during the previous quarter. The report includes discussion of any reviews of documented safety procedures, notable safety activities, lessons learned, and other information deemed appropriate by the department head.

The department heads are also required to submit a programmatic quarterly report to the Division Head by the 15th of January, April, July and October. These reports summarize the budget spending profile, programmatic issues and any unusual circumstances or constraints within their departments.

2.5   *Internal / External Safety Committees*

At the request of the Division Head, ad-hoc committees are formed to review complex systems such as process tooling, cryogenic vessels, and cryogenic installations. For specialty assignments, the Division Head may also contract with an outside consultant or organization. As part of a committee's charge, the Division Head requires that the results of the assessment be summarized in a written report that can be reviewed and acted upon by the appropriate personnel.
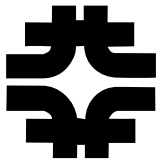
Periodically, external agencies will perform safety reviews of division systems or operations. The results of such activities are typically presented to the Division Head in written form. Before Operational Readiness Clearance is granted by the Division Head, the Division Head reviews these documents and takes appropriate action to correct noted deficiencies. See also policy TD-1140, Operational Readiness Clearance.

3.0   Auditor Requirements

The Technical Division recognizes the need to have skilled and qualified personnel available to participate as assessment team members in order to achieve the level of performance desired in the division's self-assessment program. Training and qualification requirements have been established for the OSHA-type inspections and the independent QA self-assessment activities. Special training and qualification requirements are not defined for all other assessments as it is held that the participating personnel, through their education and work experience, are technically competent to conduct the assessments.

3.1   *OSHA-Type Inspections*

OSHA-type inspections are described in section 4.4 of this document. Personnel conducting this self-assessment activity must satisfactorily complete training course *TD 001910 OSHA Review of 29 CFR 1910*, when it is periodically held under the direction of TD ES&H.

3.2 *Independent Quality Assurance Self-Assessments*

Independent QA assessments are described in section 4.2 of this document. Personnel conducting this self-assessment activity are trained and qualified to the level necessary to perform their assigned role on the assessment team. Such roles include, but are not limited to, Lead Auditor, Team Auditor, Subject Matter Expert, and Observer.

The Lead Auditor is responsible for leading the audit process activities, for approving the non-conformances identified by Team Auditors, and for issuing the audit report. Lead Auditors should also use audits to help develop the skills of the Team Auditors.

The Team Auditors are responsible for carrying out an objective audit, and for documenting findings with objective evidence.

The manager initiating the assessment appoints Subject Matter Experts (SME). The role of a SME is to assist the assessment team in technical issues related to the assessment subject. The appointing manager is responsible for ensuring that the individual selected as a SME is skilled and knowledgeable in the discipline being assessed.

Observers accompany an assessment team to observe the actions and methods of the team and perform no active role in the assessment process. As such, Observers require no special qualifications or training.

Personnel participating as a Team or Lead Auditor must meet the following criteria:

Team Auditor

To initially qualify as a Team Auditor requires the successful completion of an internal or external auditor training course or having a certification in a quality field (e.g. CQT, CQI, CQIA).

To maintain qualification as a Team Auditor requires participation in an assessment at least once every two years (this can include any type of assessment), or maintaining the appropriate certification.

Lead Auditor

To initially qualify as a Lead Auditor requires either the successful completion of a sanctioned Lead Auditor course (e.g. a 5-day Lead Assessor training, ASQ Certified Quality Auditor certification), or participation in 5 audits as a team auditor.
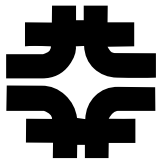
To maintain qualification as a Lead Auditor requires participation as a Lead Auditor in an assessment at least once every two years (this can include any type of assessment), or maintaining the appropriate certification (e.g. CQA, CQE).

4.0   Assessments

The division's self-assessment activities are organized into three different categories: management, independent, and worker. A general description of each is as follows:

Management Assessment - Management assessments are used to look at the total picture of how well our management systems meet our customer's requirements and expectations. The emphasis of a management assessment is on management issues that affect performance processes such as: planning, qualification, training, staffing, organizational interfaces, communication, cost control, and mission objectives. The purpose of this type of assessment is to identify management aspects of performance and make improvements through an introspective analysis to determine if the management infrastructure is properly focused on achieving the desired results. Management assessments can range from very informal to very formal.

> Examples are:
> - Division Head assessments
> - Department Head assessments
> - Line management assessments
> - Management walk-through tours

Independent Assessment - Independent assessments evaluate the performance of work processes with regard to requirements and expectations for achieving the mission and goals of the organization. The focus of independent assessments should be on the items and services produced and associated processes with the objective of improving the product/service performance and process effectiveness. (Independence is defined as not having direct responsibilities in the areas being assessed.) Independent assessments can range from very informal to very formal.

> Examples are:
> - ES&H Group assessments
> - OSHA-style inspections
> - Quality Assurance assessments

Worker Assessment - Worker assessments simply involve the worker routinely comparing the processes and products and services to defined expectations. This includes ensuring that the right products and services are being provided, the defined processes and procedures are being followed, and customer needs are being satisfied. Worker assessments are very informal.
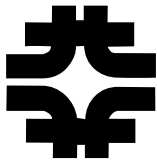
Questions to ask and answer:
- How do I do this work?
- How do I know I am doing this work correctly?
- How do I know that the outcome is free of defects?
- What do I do if I have a problem?
- What could be done to make this work better?

Whenever possible, evaluations are made based on measurable performance objectives and/or indicators that are either defined in ES&H and/or quality system documentation, other governing documents, or that are established by the assessing organization or team based on some set of pre-established criteria. The Division Head is committed to providing the resources necessary for division organizations to establish sound programmatic, safety and quality assurance programs and for performing competent self-assessments of their operations, activities, programs and procedures.
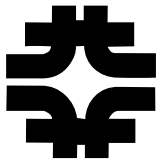
4.1   *Division Head Assessments*

On a quarterly basis, the Division Head conducts a performance-based assessment on one of the division's departments. Through this process, the performance of all major organizational units is formally assessed. The Division Head assessment emphasizes division management's direct contact and involvement with conditions in the work place. The objective of the assessment is to evaluate the performance of the department with particular emphasis on programmatic issues, ES&H and the quality of work performance.

The assessment team typically includes the Division Head and other members of the Headquarters staff, the Department Head and other key departmental staff, selected members of the ES&H Group, the QA Manager, and others that the Division Head deems appropriate for the department being assessed.

The Division Head prepares an assessment outline in consultation with members of the assessment team that generally includes provisions for the following:

1.   Review of the status of personnel training records;
2.   Review of the results of past internal and external assessment findings, paying particular attention to open findings and overdue milestones;
3.   Review of unusual occurrences, injuries, accident records, etc. that have occurred since the last assessment;
4.   Review of departmental self-assessment activities, including assessment results and lessons learned by the department;
5.   Review of the status of programs and projects assigned to the department;
6.   A walk-through inspection of the department's work areas, which generally includes observations of operations and work processes and an inspection of facility conditions.

The assessment begins with an opening meeting in which the Division Head discusses the assessment topics with the department being assessed.

At the conclusion of the opening meeting, the assessment team conducts a walk-through of the department's work areas. The walk-through includes discussion with area personnel that provides a forum for feedback to division management on issues that may require division-level decisions and/or resource allocation. The walk-through also includes an inspection of work areas for non-compliance to Fermilab policies and other codes and standards. The condition of facilities is reviewed for impact on department operations, safety, quality of work environment, and effective utilization of workspace. The walk-through also provides the opportunity to focus on difficult compliance issues, adequacy of space, and facility maintenance needs.

After the area walk-through, a closing meeting may be held. Those individuals who attended the opening meeting usually attend this meeting. If areas of particular interest or need were uncovered during the walk-through, then individuals with special knowledge of these areas may also be requested to attend. The objectives of the closing meeting are to review the results of the area walk-throughs and discuss significant aspects of the department's programmatic issues, ES&H and quality performance. The effectiveness of the department's self-assessment activities is reviewed and action plans for dealing with difficult issues are discussed.
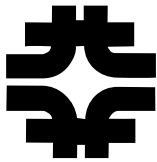
Output:

After the assessment is completed a draft report is issued to the Department Head for review. The report covers prominent features of the assessment, including notable practices, findings, concerns, observations, recommendations for improvement, and other pertinent issues. Once the factual accuracy review is completed, the final report is distributed to all TD department heads in order to share notable practices and lessons learned across the division.

Following the issuance of the assessment report, the assessment is entered into ESHTRK. The Department Head is responsible for correcting and tracking each finding to closure.

4.2 *Independent QA Assessments*

At least once per year, the Division Head, or another division manager, identifies a need to assess the performance of certain elements or operations within the division (e.g. projects). When this occurs, the initiating manager consults with the QA Manager and other members of division management to define the scope and nature of the assessment. An assessment team is formed by selecting a lead auditor and an appropriate number of team auditors. Subject matter experts may be assigned to the team to assist in technical aspects of the review. Supervisors of personnel identified to serve on the assessment team are consulted prior to the commissioning of the team to ensure that an individual's participation does not conflict with other ongoing activities or operations.

Each assessment is conducted using recognized assessment techniques. The lead auditor is responsible for organizing the assessment team and for providing a briefing to the team on the specifics of the assessment. The lead auditor prepares an assessment plan prior to the start of the assessment and is encouraged to include the assessment team in the preparation of the plan.

Output:

Following the assessment, the results of the assessment are summarized in a report that is submitted to the assessed organization for factual accuracy review. Upon completion of this review, the final report is submitted to the initiating manager for review, distribution and follow-up action.
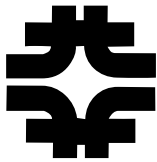
Note for FY2002 through FY2004:

For FY2002 through 2004, a new self-assessment requirement has been added to the contract between the URA and the DOE regarding the operations of Fermilab. The requirement is that the Lab is to define all its business processes, and conduct self-assessments of every process within a three-year period (beginning in FY2002). The Majority of these self-assessments fall under the category of independent QA assessments, and so during this period at least 10 QA assessments are typically being done each year. The assessment reports are published at the end of each fiscal year, and are sent to the DOE for feedback. Improvement items identified during the assessments are also tracked by the Directorate. This program is in its infancy. After the completion of the FY 2002 processes self-assessments, the program value is being examined by all parties to determine the merits and scope of such a program if it is to continue at any level.

4.3   *ES&H Operational Reviews*

The ES&H group conducts formal operational assessments (also called safety reviews) of the division for compliance with requirements set forth in the Fermilab ES&H Manual, Fermilab Radiological Control Manual, other applicable laboratory documents, DOE orders, codes, and standards.

Output:

A report summarizing the results of each operational assessment is prepared and submitted to the Division Head for review and action. The report includes a summary of the assessment objectives and results and identifies deficiencies and any areas of concern. The report also makes recommendations on possible courses of action that will correct identified deficiencies and concerns in the spirit of improving the overall environment of Technical Division work places.

4.4   *OSHA-type Inspections*

Quarterly "OSHA-type inspections" are carried out by qualified TD personnel on all buildings and outdoor areas for which the TD has landlord responsibility. Quarterly inspections are also carried out in satellite machine shops operated under TD control. Work areas are reviewed for ES&H practice and compliance to all applicable orders, codes, policies, and standards.

By the 20th day of each quarter, inspectors are appointed and assigned to specific inspection areas by TD Headquarters. Inspection assignments are recorded on the TD Quarterly SAP Inspector Assignment form and approved by the Division Head. Each inspector is randomly selected from the TD OSHA-type inspector pool, and is assigned to inspect a work area other than their own to help ensure that work areas are being reviewed by "fresh eyes."

Assignments are distributed to inspectors through their Department Head. Inspectors work with the contact person of the area to be inspected to set up inspection schedules. Area contact persons are identified on the Inspector Assignment Form. The walk-through portion of the inspection process is to be completed by the 20th day of the second month of the quarter.

During the area inspections, the inspector is accompanied at a minimum by the area contact person. Work area supervisors are also encouraged to attend inspections of their areas to clarify questions the inspector may have and to facilitate correction of deficiencies. Others may be invited to participate at the request of review participants.
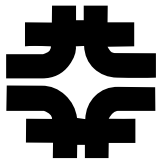
Output:

After the inspection is complete, the inspection report is forwarded to the ES&H Group for entry into ESHTRK. Data entry is completed within one calendar week of the completion of the inspection. Once entered, findings are automatically assigned to department heads based on the location of the finding.

Department heads are responsible for tracking findings through closure. Questions regarding the validity of findings are addressed to the ES&H Group for resolution. The Department Head assigns responsibility for the abatement of findings to individuals within his/her organization and is responsible for providing that person with the resources necessary to accomplish abatement in a timely manner.

4.5   *Tripartite Assessments*

The Tripartite Assessment Program is the primary vehicle for implementing the Fermilab Self-Assessment Program, and is described in the Fermilab Self-Assessment Program Plan (SAPP). The groups participating in the Tripartite assessments of the Technical Division are the TD management, the ES&H Section

and the DOE Fermi Area Office. The TD fills the role of either the Lead assessor or the Participant (Team) assessor for all Tripartite assessments of the TD.

Output:

Results from the Tripartite assessments are published using the "Self-Assessment Report" template (found on the ES&H Section web site) and are recorded and tracked in ESHTRK.

4.6   *Other Assessments*

To review the division's ES&H program, the ES&H Group conducts "quarterly walk-through audits" of various aspects of areas where TD employees are working. The audits are conducted during the third month of each quarter. The subject of these audits is chosen by the ES&H Group in consultation with division management and reflects current division activities or operations. A member from the management audit pool, the "DuPont auditors", accompanies the ES&H Group auditor on the walk through. The DuPont auditors are management and supervisory personnel that are focused on auditing employee activities and observing behavior for safe or unsafe working practices. This is in contrast to the OSHA-type inspections (Section 4.4) that focus on specific code and/or regulation violations. The DuPont auditors are assigned a work area other than their own.
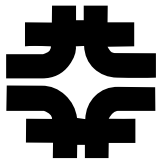
In addition to the quarterly walk-through audits, members of the ES&H Group perform periodic assessments in the areas of radiological control, waste management, ergonomics, and industrial hygiene.

Division management also conducts periodic walk-through tours. These tours may be formal or informal (i.e. planned or spontaneous). The purpose of these tours is for division management to understand any ES&H and operational issues that are present, as well as review status of progress towards achieving goals.

Output:

Results of the quarterly walk-through and other ES&H Group periodic assessments are provided in memos and other forms of communication to appropriate departmental staff including the department head and are entered into ESHTRK. The DuPont auditors provide their findings and observations to the ES&H Group auditor, who in turn incorporates the information into a memo that covers the overall results of the audit.

Results of the management tours are typically recorded in memos or e-mails, but may also be communicated only verbally. At the discretion of management, issues raised during the tours may be entered into ESHTRK.
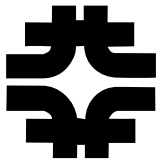
5.0   Response to External Assessment Activities

Periodically, external agencies and organizations assess the performance of division programs and operations. Results of these assessments are typically reported to the Division Head. As required, the Division Head responds to external assessments.

Findings generated from external assessments are entered into ESHTRK by TD ES&H and are assigned to division personnel based on the nature of the non-compliance. The person to whom a finding has been assigned is responsible for the prompt correction of the non-compliance. For more difficult or complicated issues, the responsible party develops a corrective action plan, with appropriate milestones, to resolve the non-compliance. The corrective action plan is submitted to the Division Head for concurrence before implementation. Changes to the corrective action plan are submitted to the Division Head for concurrence before the request for modification is made to the assessing organization.

As appropriate, progress made in meeting milestones and closing out assessment findings is evaluated by division management. The person responsible for the corrective action plan reports, to the Division Head, any unresolved problems associated with implementation. The Division Head responds as required and provides assistance and resources as necessary to address and resolve problem areas.

Fermilab Policy Manual

http://www.fnal.gov/directorate/documents.html ("Fermilab Director's Policy Manual")

Fermilab ES&H Manual

http://www-esh.fnal.gov/home/esh_home_page.html ("Manuals and Procedures")

Fermilab Self-Assessment Program Plan

http://www-esh.fnal.gov/dirsapp/SAPP.html

ESHTRK

http://www-esh.fnal.gov/home/esh_home_page.html ("Assessments and ESHTRK")

ES&H Section Home Page

http://www-esh.fnal.gov/home/esh_home_page.html

Appendix I of the DOE/Fermilab Prime Contract (DOE Orders)

http://www.fnal.gov/directorate/documents/DOE_Contract/appendixi.html

TD Policies and Procedures Manual - includes the TD Quality Management Program TD-2010

Hard-copy distributions in the headquarters library and the Senior Safety Officer. Documents are also being migrated to the TD home page http://www-td.fnal.gov/ - click on the "Tech Division Info" tab.

DOE G 414.1-1 Implementation Guide for use with Independent and Management Assessments

http://www.directives.doe.gov/pdfs/doe/doetext/neword/414/g4141-1a.pdf

Occupational Safety & Health Administration (OSHA) - Title 29 CFR

http://www.osha-slc.gov/OshStd_toc/OSHA_Std_toc.html